Listing of Claims

1. (Previously Presented) A method for treating polychlorinated biphenyl (PCB) contaminated media comprising the steps of:

a) combining said media with a fluid containing one or more liquid hydrocarbons to form a media/fluid mixture;

b) sonicating said mixture at audio frequency to extract PCB from the media into the fluid; and

c) treating said fluid with molten sodium-containing alkali metal.

2. (Currently Amended) The method of claim 1 including the additional steps of heating said ~~slurry~~ media/fluid mixture prior to and during said sonicating step.

3. (Original) The method of claim 1 wherein said media is soil.

4. (Currently Amended) The method of claim 1 wherein said media is ballast residue ~~such as tar or pitch~~.

5. (Original) The method of claim 1 wherein said fluid contains a mixture of water and one or more liquid hydrocarbons.

6. (Original) The method of claim 1 wherein said liquid hydrocarbons include kerosene.

7. (Original) The method of claim 1 including the additional step of reducing the particle size of said media prior to said combining step, said reducing step being one or more of sieving, comminuting and pulverizing said media.

8. (Original) The method of claim 1 including the additional step of air-drying said media prior to said combining step.

9. (Original) The method of claim 1 wherein said treatment step takes place during said sonication step and said sonication step occurs at a temperature sufficient to melt said sodium-containing alkali metal.

10. (Original) The method of claim 9 wherein said sonication step occurs in a sealed vessel with a vent to release gas during sonication.

11. (Original) The method of claim 9 wherein said sonication step occurs in a vessel with one or more inlets and outlets able to transfer said media/fluid mixture between said vessel and a pump-equipped reservoir.

12. (Currently Amended) The method of claim 11 wherein said sonication step further includes using inert gas to purge the head space of said reservoir and said ~~sonication~~ vessel.

13. (Currently Amended) The method of claim 11 further including the step of ~~transferring~~ decanting said sonicated media/fluid mixture ~~of from one of said sonication vessel and said reservoir to a settling tank~~ to separate sonicated ~~liquid~~fluid and sonicated media.

14. (Original) The method of claim 13 including an additional step of sonicating said separated sonicated fluid in the presence of sodium containing alkali metal and at a temperature sufficient to melt sodium containing alkali metal.

15. (Original) The method of claim 13 including the additional step of treating said separated sonicated media with water in a flotation cell to dislodge residual PCB-containing hydrocarbon liquid and froth from said separated sonicated media.

16. (Currently Amended) The method of claim 15 wherein said flotation cell treated ~~soil~~ media is recycled to the environment.

17. (Canceled)

18. (Original) The method of claim 15 wherein said froth is recycled and used as part of said fluid in said method.

19. (Currently Amended) The method of claim 15 wherein said ~~floatation~~ flotation cell includes a frothing agent.

20. (Currently Amended) The method of claim 15 wherein said ~~floatation~~ flotation cell includes pH adjustment with sodium carbonate.

21. (Original) The method of claim 1 wherein said sonication step includes the addition of lime to said mixture.

22. (Currently Amended) The method of claim 21, wherein said sonication step is repeated using ~~said~~ lime-sonicated media and a sodium-containing alkali metal at a temperature sufficient to melt sodium.

23. (Original) The method of claim 22 wherein said sonication steps occur in a sealed vessel able to be vented to release gas during sonication.

24. (Original) The method of claim 14 wherein said treated separated sonicated fluid is recycled for use as said fluid in said method.

25. (Original) The method of claim 1 wherein said sonicating step uses sonication equipment without grinding media.

26. (Currently Amended) The method of claim 1, wherein said sonicating step occurs ~~in~~at a temperature ~~range of~~ greater than 98 ~~100-120~~ °C.

27. (Original) The method of claim 5, wherein said sonicating step occurs in a temperature range of 80-98°C.

28. (Currently Amended) The method of claim 1, wherein said sonicating step uses a resonating probe contacting said ~~fluid~~mixture.

29. (Original) The method of claim 1, wherein said sonicating step takes place in one or more chambers mounted axially to a resonating member.

30. (Canceled)

31. (Original) The method according to claim 4, wherein said sonicating step occurs at a ~~minimum of~~ temperature greater than 98 ~~100~~°C.

32. (Currently Amended) The method according to claim 1, wherein said sodium-containing alkali metal is ~~commercially pure~~ sodium ~~metal~~.

33. (Currently Amended) An apparatus for treating polychlorinated biphenyl (PCB) contaminated media, comprising:

a) a reaction vessel for holding a mixture of said media, a liquid hydrocarbon-containing fluid, and a molten sodium-containing alkali metal, said reaction vessel having vents to release gas during sonication;
b) an audio frequency sonicator without grinding media for sonicating said mixture at an audio frequency; and
c) a heater for controlling the temperature of said mixture and maintaining said molten sodium-containing alkali metal in a molten state, said heater having an operating range with an upper limit at least equal to a temperature of molten sodium.

34. (Original) The apparatus of claim 33, wherein said sonicator uses a resonating probe contacting said mixture.

35. (Original) The apparatus of claim 33, wherein said reaction vessel consists of one or more chambers mounted axially to a resonating member of said sonicator.

36. (Canceled)